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GRAVITY RECONSIDERATION IN TRI-QUANTUM ENERGETIC SPACE - TIME EVTD^2 WHERE THE POTENTIALS ARE EXPRESSED IN *h* QUANTUM ENERGETIC LEVELS. MASS TEMPERATURE ABOVE 0 K AND THE ZERO RESULTING POTENTIAL HAS A MAJOR ROLE WITH EMW

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Abstract: *A new physics results from the quantum repartition of diffuse energy in a pace-time tri quantum. The energetic entities EVTD^2 theory allows phenomenological explanations connected to the concerned process, especially in gravity. The quantified potentials and energetic fields in h result from electromagnetic emissions of masses brought to a certain temperature (black body). The understanding of these phenomena allows not validating the direct interaction between masses, proposed till present. It would be rather a simultaneous attraction to the masses from the zero resulting potential then considered as "mini black hole" that would attract the masses towards him. In this "black hole" EMW acts and ensures compacting of quantified energetic levels. Illustrations of these various processes are proposed for two identical, different masses and the case of the free fall of bodies.*

Key words: *wholly quantum space-time, quantum EVTD^2 gravity, EVTD^2 entities theory, quantum Substratum.*

1. INTRODUCTION

In the EVTD^2 entities theory [1-6] the space-time as well as the condensed matter are structured and formatted in linked cubic energetic entities EVTD^2, entirely quantified whose volume is about $0.5 \cdot 10^{-105}$ m^3. This basic structure is tri quantum with, especially, diffuse energy standing at the base of so named *Substratum* common and representative for the dark matter and also for dark energy [7]. The *Substratum* energy can exist only with *well defined quantum levels* as to agree with the base itself of EVTD^2 entities. This *Substratum* energy results of electromagnetic *longitudinal* EMW wave actions in alternating vibrating phases at Planck frequency. Indeed, in mechanics, the energy's recognized particularity is ***its possibility to do mechanical work.*** That means the vibrating actions of EMW on *Substratum* [1-6]. So, thus defined space-time in the areas where condensed matter does not exist represents a Coherent Background, homogenous in its own properties. A condensed matter mass, present in this Coherent Background will introduce a particularity in conformity with its own energetic concentration ($E=mc^2$) [8-9] that, mostly, is at a higher temperature as 0 K. Thus, this condensed matter will emit, as the black body, electromagnetic waves adapted to its temperature in this *Coherent Background EVTD^2 that has itself an electromagnetic structure* [1-6]. In order to continue, adding a second mass, having the same temperature as the first one in this background, will make appear an increased complexity at the level of the resulting energetic field. This last will be more increased if the two masses are different in value and also in temperature: this will structure the energetic fields that, normally, are to be quantified in relation with the concrete states. In this context, the masses bring in the background only their own characteristics, but gravity will be generated in the inter-mass space and, more precisely,

at the level of zero resulting potential point, by the EMW work [10-12]. This can induce *very specific consequences relative to different potentials and achievements, different particularities of EMW perennial work* [10-12]. These last are relative to *gravity generation but also to electrostatic force for charged particles* [13] in EVTD^2. The respective fields of electrically charged particles as well as of the magnets (the approach and the development are the same), will also be harmoniously inserted in the electromagnetic Coherent Background. Thus, everything will be played at the level of the inter-particle space and of magnetic poles in the treatment of both electric and magnetic concerned relative fields. This will be the EMW specific work that will exploit the electric and magnetic vectors as to generate attraction or repulsive forces. In the paper [13] is highlighted another specificity of prioritization in electric fields of two electric charges - it is about using a basic electric quantum: electron volt *eV*. In fact, the use in this case of quantum *h* proved, by calculations, the incompatibility with EVTD^2 theory.

2. GRAVITY – THE ENERGETIC FIELDS IN *h* ARE EMITTED BY A MASS IN RADIANT TEMPERATURE IN THE SPATIAL COERENT BACKGROUND

The first thing here is to represent in 2D the Coherent Background (figure 1) resulting from the bases of the EVTD^2 entities theory [1-6].

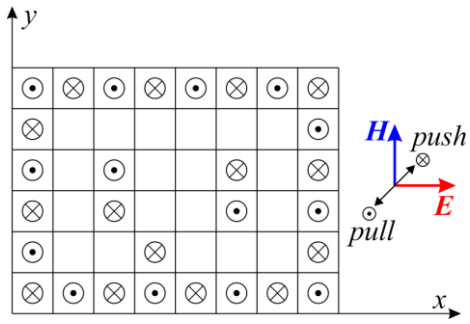

Fig. 1. Simplified 2D representation of ***E, H*** vectors and pushed-pulled of longitudinal EMW spreading that structure the tri-quantum EVTD^2 space-time.

Figure 2 presents a mass with a certain temperature, in the Coherent Background. As indicated in introduction, this mass emits a wide range of electromagnetic waves, as the black body, intrinsic to T (absolute temperature). The global radiant flow is conservative in space but going away from the generating mass it diverges and densities of energy, in *h* quanta since it is emission of photons, continuously regress within the progressive distancing from the mass. For a spherical body, this regression of quantum levels in electromagnetic energy will be organized in spherical energetic equipotentials, centered on the bodies (figure 2). So, it is a possible perfect representation of what is actually called gravitation energetic potentials [14-20]. ***The inclusion and use of the energy levels of the mass (black body) electromagnetic radiation to represent the energetic potential which adequately materialize gravitational potentials*** is the originality of this new EVTD^2 physics.

In recent work [10-12] quantum levels were represented by levels of progressive lengths and, after that, *the perfectly coherent representation of quantification in h, of potential energy prioritization* proved to be conforming. They will play the new role, instead of the ancients, theoretical potentials of classical gravitation like that, finally, results from these earlier works. Ultimately, it is therefore that specific energetic quantum potentials, in quanta Planck *h*, will serve as a basic structure to its compaction of energetic quantum levels of each in the other [10-12].

It is this hierarchy in quantum energy levels which, consequently, spread in any surrounding space-time specific information on characteristic masses state. This will eventually, primarily *generate attraction displacements of the masses to the area of the zero resulting potential*, what has been, until now, synthesized accordingly as the so-called direct attraction inter masses of classical gravity.

Thus, the gravity through the EVTD^2 theory ***is an interaction between the zero***

resultant potential and each of masses, so it would be no more a direct interaction between the masses. To simplify this model we therefore can say that the area of the zero resulting potential behaves as ***a tiny black hole*** attracting the masses. In addition, by exploiting this new approach, one may wonder about the participation in the gravity phenomena, on one hand, of the Sun surface temperature (about 6000 K) and its corresponding black body radiation in report of those of Earth which average surface temperature is approximately 290 K. From this, one may wonder *what can be the influence of the corresponding radiation on the considered mass value admitted in classical physics* till now. Would it be someday necessary to revisit the definition of the mass in the concept of gravity by taking into account the impact of the body temperature?

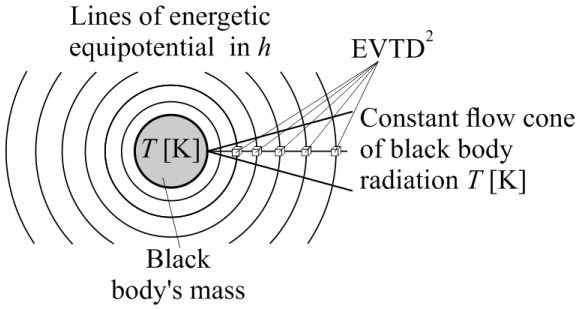

Fig. 2. Simplified and highly zoomed of the potential quantum levels distribution and the gradient density of radiant energy with the distance from the mass.

3. TWO IDENTIC AND DIFFERENT MASSES: CHARACTERISTICS AND COMPACTING FOR ZERO REZULTING POTENTIAL ZONES

The states and the characteristics of two identical masses, at the same temperature and placed in the Coherent Background $EVTD^2$, are symmetrical in report with their zero resulting potential. In addition, as calculated in [10-12], *the length (segments) of quantic energetic potential levels intrinsic to each mass (identical or different) are strictly equal in the zone of zero resulting potential.* This allows, in this zone, a perfect super-positioning of these quantic potentials as to give *a resulting field harmoniously structured*. In figure 3 the close environment of the zero resulting potential of two identical masses is schematized with representative resulting quantum levels that are calculable [10-12]. If the masses can move free, the compacting work of EMW will initiate and accelerate the symmetrical and reciprocal attractions to zero resulting potential that *it*, itself, *will remain fixed in these circumstances*. Indeed it is in and around *O* (zero resulting potential) compaction compaction and therefore the approaches are initiated. In the diagram in figure 3 we well observe that processes are perfectly symmetrical to the tiny "black hole" (zero potential) and, all compaction, in the course of time, as well as attraction movements towards *O*, which remains in a fixed position. Thus, right and left *O* compaction are symmetrical and durations for these progress until the two masses are identical. So, *the answer of each mass will be that they will be moved identically to the point O, at the same time and, same acceleration*.

For the case where the two masses are different and can be at different temperatures it is a certain schematization and, there are compaction in the mini black hole in *O* and approaches at different speed and acceleration of the concerned masses. The question which arises, from compaction which are identical to the level of *O* (by exactly equal levels of quantum levels around *O*) in the first moments of the phenomenon, relates to the difference in acceleration for displacements to O. The simple answer lies in the consideration that the distance of one of the masses (lighter) from the point *O* is shorter than the other for the heavier mass. It follows, therefore, that compaction and their information transmitted to this lighter mass, will be faster than on the side of the higher mass. Therefore slight mass is moving to *O* earlier that will do the other mass.

Thus this approach, more early, will displace all the hierarchy of small mass energy levels to *O*. This will give an additional compaction effect of the quantum levels related to this same mass as they converge on *O*. Indeed, the acceleration of the approach of light mass will

be larger than for the heavier mass by an improvement and a greater compaction speed, to the mass of his side.

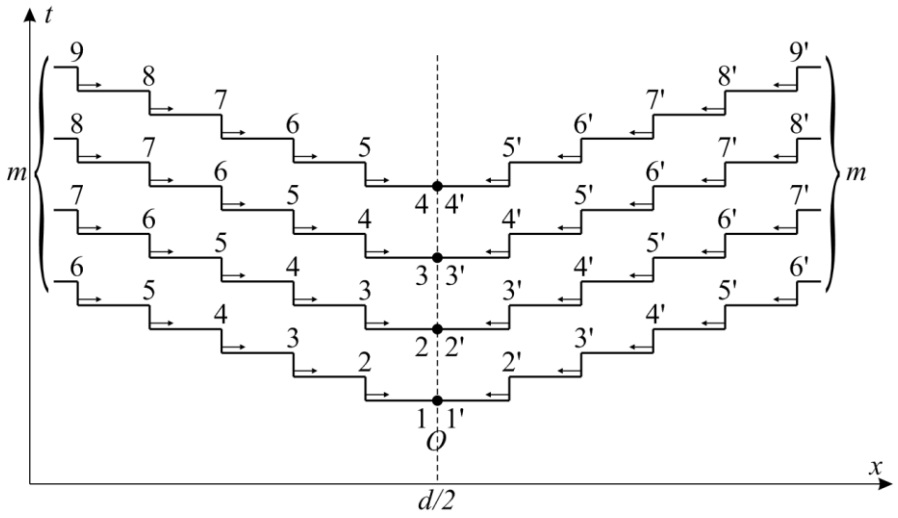

Fig. 3. Comprehensive and illustrative image of the energetic potential distributions at quantum levels for two identical masses at the same temperature. Illustrations of the initial compaction stages between quantum levels and attractions of each of the masses by the intimate link between masses and its energetic potentials.

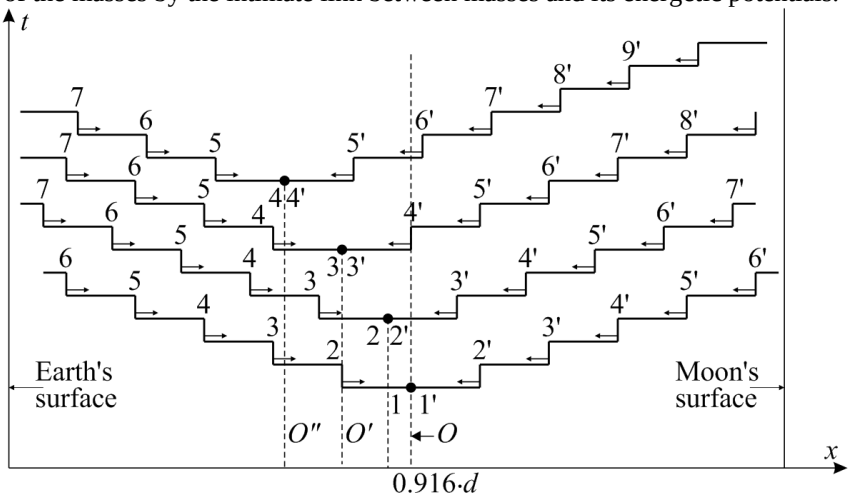

Fig. 4. Comprehensive and illustrative image of the energetic potential distributions at quantum levels for two different masses. Illustrations of the initial compaction stages between quantum levels and attractions differentiated from each of the masses in acceleration as well as the relative displacement of the point *O*.

More, by referring to figure 4, illustration shows that as a result of the greater speed of the process of the indicated side, makes the point *O* migrate more quickly to the heavier. This so that it is at any moment, correctly positioned during the associated decrease in distance inter mass during accelerated approaches.

4. CAS OF DIFFERENT MASSES IN FREE FALLING

We already shown in previous papers and, especially in [12] that in the case of bodies free falling, on Earth for example, *the zero resulting potential was positioned inside the mass of any light body.* This will produce specific conjunctures relative to specific compacting processes around this point *O*, directly related to the mass of falling body. It is possible that the point *O* to be moved till the close proximity with tha falling body, in *O'*, for example (fig. 5). Therefore, the answers to compacting inside of the body mass will be instantaneous and also inside the mass, which will remain someway itself. ***It will follow that the compacting process and the fallings (approaches) will depend only on conjuncture of Earth side, from O till the soil.***

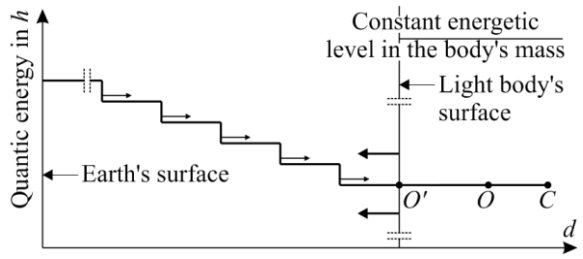

Fig. 5. Comprehensive and illustrative image of the energetic potential distributions at quantum levels for a light body falling on the Earth soil: *O* and *O'* – zero resulting potential; *C* – gravity center of the light body.

They are always identical for the same position on Earth surface end, thus, the falling process will be in fact representative only of the ongoing process between the point *O* and its distance to the Earth center. This is represented in figure 5 and *we shall understand that* ***the influence of body mass*** *on its free falling is, in fact,* ***annihilated*** and all bodies, not having and excessively mass, fall in the same way.

5. CONCLUSION

The new physics, based on quantum space-time structuring in EVTD^2 entities allows these different revisits of some pillars of contemporary physics [13]. The proposal that gravitational fields be at the base on quantification according to a hierarchy in levels depending on Planck quantum *h* is in perfect correlation with the EVTD^2. It is to mention e*specially, taking into account the* ***blackbody emissions*** *(the various masses to their temperature), in explanation of gravity fields permanently updated in energy flows* ***already quantified in h****, of their own electromagnetic radiation. Ultimately, the center where gravity is generated is the area of the zero resulting potential* where initiate and propagate ***similar phenomena to those attractive of a "mini black hole"****.*

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Reanaliza gravitației într-un spațiu-timp energetic tri-cuantic EVTD^2, unde potențialele se exprimă în nivele energetice cuantificate în *h*. Temperatura maselor peste 0 K și potențialul rezultant zero au un rol important, alături de OME

Din repartiția cuantică a energiei difuze, într-un spațiu-timp tri-cuantic, rezultă o nouă fizică. Teoria entităților energetice EVTD^2 permite explicarea fenomenologică a proceselor reprezentând, mai ales, gravitația. Potențialele și câmpurile energetice cuantificate în *h* decurg din emisii electromagnetice radiate de masele ce au o anumită temperatură (corp negru). Înțelegerea acestor fenomene permite a nu valida interacțiunea directă dintre mase, propusă până în prezent. Este, mai degrabă, vorba de o atracție simultană asupra maselor de la un potențial rezultant zero considerat ca o „mini gaură neagră" care ar atrage masele spre el. în această „gaură neagră" ar acționa OME, asigurând compactarea nivelurilor energetice cuantice. Sunt propuse ilustrări ale acestor procese diverse: pentru două mase identice, două mase diferite și cazul căderii libere a corpurilor.

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